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CHILDREN'S IMAGERY USE IN ACTIVE PLAY

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CHILDREN'S IMAGERY USE IN ACTIVE PLAY

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ABSTRACT

Physical activity is important in everyday life; however 88% of Canadian children are not physically active (CFLRI, 2008). It is important to identify strategies to assist children to increase their physical activity; one such strategy could be imagery. The purpose of the present study was to examine children's use of imagery in their active play using a qualitative approach based on the three basic psychological needs put forth by Basic Needs Theory (autonomy, competence and relatedness; Deci & Ryan, 2002). In addition, the study examined gender and age differences that existed in children's use of imagery in their active play. The participants included 104, 7-14 year olds. A total of 23 focus groups were conducted. The results indicated children are using active play imagery and that their imagery is satisfying the three basic psychological needs. Autonomy was satisfied by participants imaging activities that are enjoyable, activities they do often, and those that their favourite activities. Participants reported satisfying the need for relatedness by imaging friends, family members and others (i.e. professional athletes). Competence was satisfied by participants imaging themselves being good at performing their activities, with many participants imaging themselves better than actually are. Age and gender differences emerged in relatedness and competence. The findings from the study can facilitate the development of imagery interventions aimed at increasing children's motivation to do physical activity.

Keywords: imagery, children, active play, basic needs theory

CO-AUTHORSHIP

I would like to acknowledge my co-authors on this research project. I would like to acknowledge my supervisor Dr. Craig Hall, as well as Eric Nadalin and Dr. Krista Munroe-Chandler both from the University of Windsor.

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Children's Imagery Use in Active Play

It is a known fact that daily physical activity is important in one's life, as it brings numerous benefits to a person's health. In today's society physical activity seems to be declining, with 52% of Canadians being not physically active (CFLRI, 2008). Active Healthy Kids (2010) offers the most comprehensive annual assessment of child and youth physical activity in Canada. According to Active Healthy Kids (2010), Canadian children and youth are not meeting the required physical activity guidelines. More specifically, 88% of Canadian children and youth are not meeting the required 90 minutes of daily physical activity. This is a very large percentage of children who are not getting enough daily physical activity and the long-term consequences for their health may be serious. Physical activity has not only physical benefits (e.g., increase strength and endurance, builds strong bones and muscles), but also psychological benefits (e.g., increase self-confidence and reduce stress and anxiety) (Olds & Papalia, 2005). In this context, it is important to identify strategies to assist individuals, and especially children, to increase their physical activity. A key to the development of effective strategies is to focus on increasing the motivation of children to participate in physical activity as motivation has been shown to be a barrier for children in pursuing physical activity (Burrows, Eves, & Cooper, 1999). One such strategy is the use of imagery, which is the focus of the present research.

Imagery can be defined as an "experience that mimics real experiences. It differs from a dream in that we are awake and conscious when we form an image" (White & Hardy, 1998, p.389). Imagery enables individuals to create or recreate experiences in their minds. Researchers have argued that imagery is a "central pillar of applied sport

psychology" (Perry & Morris, 1995, p.339). Imagery has predominantly been researched in the sport domain; however, over the past decade imagery also has been investigated in the exercise domain. Imagery has been shown to be effective in increasing motivation in adult exercisers (Giacobbi, Hausenblas, Fallon, & Hall, 2003). It has also been shown to increase adult's exercise self-efficacy (Cumming, 2008), motivation (Wilson, Rodgers, Hall & Gammage, 2003) and intentions to exercise (Rodgers, Munroe, & Hall, 2002). The relationship between imagery use and participation in leisure-time physical activity (i.e., exercise) has been examined in adults, but has yet to be investigated in children.

When examining the relationship between imagery use and physical activity participation it is important to have a strong theoretical basis, which for the present study will be Self-Determination Theory (SDT). This theory represents a broad framework for the study of human motivation and personality (Deci & Ryan, 2002). SDT identifies three basic psychological needs – autonomy, competence and relatedness that need to be satisfied to enable individuals to thrive and be motivated. These needs apply to all people regardless of age, gender or culture. People strive to engage in an environment where these needs will be satisfied to ensure personal growth and increase well-being. It is possible that children's imagery use during active play can trigger satisfaction of these basic psychological needs. Understanding children's motivation to do physical activity is a key step on the road to enhancing and sustaining children's physical activity. By understanding their motivation, specific interventions could then be developed and used to enhance their motivation, which in turn can lead to increases in their leisure-time physical activity. In the present study, the use of imagery by children to satisfy the three psychological needs posited by SDT was investigated. It is important to note that leisure-

time physical activity can be divided into two categories, either structured (e.g. organized sport) or unstructured (e.g. active play). According to Active Healthy Kids (2010) at least half of children's physical activity should come from unstructured sessions of free play. The present study examined unstructured leisure-time physical activity, also known as active play. For the present study, active play is defined as, "unstructured physical activity that takes place outdoors in a child's free time" (Veitch et al., 2009, p. 870). Having briefly introduced the nature of the present study, next some of the main constructs examined in this research (i.e., imagery, SDT) will be considered in more detail.

Imagery in Sport

As noted above, imagery use in physical activity has been primarily investigated in sport. Paivio (1985) established a framework for imagery in sport which incorporates cognitive and motivation functions that operate at either a general or specific level. The cognitive general (CG) function is imaging strategies, routines or game plans (e.g., two on one in hockey), whereas the cognitive specific (CS) function involves imaging specific skills (e.g., a slap shot in hockey). The motivational function is divided into motivational general (MG) which includes imaging physiological arousal levels and emotions (e.g., getting psyched up before a game), and motivational specific (MS) which is imaging individual goals (e.g., winning a gold medal). Hall, Mack, Paivio, and Hausenblas (1998) separated the motivational general function into two categories, motivational general-arousal (MG-A) and motivational general-mastery (MG-M). The former includes imaging arousal regulation and the latter includes imaging pictures that are associated with mastery, self-confidence and mental toughness.

In a sport context with adult athletes, imagery has been shown to increase performance and learning in both practice and competition (Blair, Hall, & Leyshon, 1993; Vealey & Greenleaf, 2006). In addition imagery has been shown to influence thoughts and emotions such as increasing self-confidence (Callow, Hardy & Hall, 2001), motivation (Beauchamp, Halliwell, Fournier, and Koestner, 1996), and attentional control (Calmels et al., 2004). Children, similar to adults, have been found to use imagery in sport for both cognitive and motivational purposes such as executing skills and strategies, setting goals, increasing confidence and regulating arousal (Munroe-Chandler et al. 2007).

Children as young as 7 years of age have been found to benefit from the use of imagery in a sport context. Li-Wei, Qi-Wei, Orlick, and Zitzelsberger (1992) examined the impact of imagery training on performance enhancement with 7-10 year old children. More specifically, the researchers examined whether children would be capable of and interested in using mental imagery, as well as whether an imagery training program would lead to performance enhancement. A total of 40 male and female promising young table tennis athletes participated in the study. The participants were divided into three groups. Group 1 participants were put through an experimental mental-training program which included relaxation, video observation and mental imagery sessions. Group 2 participants received the same video observation as Group1; however, they did not receive the relaxation or the mental imagery sessions. Finally Group 3 participants did not receive any aspect of mental training – they were the control group. The experimental procedure lasted 22 weeks with all participants continuing to physically train as they normally would. The results from this study indicated that imagery training can enhance

performance among 7-10 year old children. The superior improvement of the children in the imagery group was predominantly seen in the quality of their performance. This study demonstrated that children can use imagery to increase their performance; however, this study only used children who were competitive athletes and trained regularly.

Munroe-Chandler, Hall, Fishburne, and Strachan (2007) examined the use of imagery by children aged 7-14 years old. The study used a qualitative approach with 110 male and female recreational and competitive athletes from a variety of sports. The athletes participated in focus groups to examine the *when, where* and *why* of children's imagery use in sport. The results for *when* and *where* indicated the athletes, regardless of age, reported using imagery during practice, and before and during competition. Furthermore, all age groups except 7-8 year olds reported using imagery outside of practice. With respect to why the children employed imagery, all age cohorts reported using imagery for cognitive and motivational purposes. More specifically, all age cohorts reported using imagery for skill development and execution, and for learning and performing strategies of play. With respect to the use of motivational imagery, motivational-general-arousal imagery was only employed by female athletes. Also, only boys 13-14 reported using imagery to maintain or regain confidence (i.e., motivational general-mastery imagery). This study indicated that both age and gender differences exist when it comes to why children use imagery in a sport context.

Munroe-Chandler, Hall, Fishburne, O, and Hall, (2007) examined the content of young athletes' imagery. The participants again were 7 to 14 years old and competed in various individual and team sports and at various levels of competition: house league, regional and provincial. The results indicated that young athletes' imagery could be

divided into 5 content categories: sessions, effectiveness, nature of imagery, surroundings, and type of imagery. The results also indicated that age influenced imagery content. The older age groups (9-14 years old) indicated using all five categories, whereas the younger age cohort (7-8 year olds) did not report the duration of their images or whether or not their imagery sessions were planned. Therefore, older age groups reported more elaborate imagery content and used imagery in a more planned manner. Another age difference was found in the nature category where younger participants (7-10) did not distinguish between positive and negative images, while the older age groups made this distinction. It was also found that the older age groups reported using both visual and kinesthetic imagery, whereas the younger age groups only reported using visual imagery. Gender differences were also evident. It was found that 9-10 year old girls reported the duration and planning of their imagery sessions. Furthermore, all females, regardless of age, reported imaging their surroundings, a finding which was not seen in boys except for 9-12 year olds.

Extending the previous two studies, Munroe-Chandler, Hall, and Fishburne (2008) examined the relationship between imagery use and both self-confidence and self-efficacy in soccer players aged 11-14 years old competing at recreational and competitive levels. The participants were asked to complete three questionnaires; one measuring the frequency of imagery use, one assessing generalized self-confidence, and one assessing self-efficacy in soccer. Results of the study indicated that motivation general-mastery (MG-M) imagery was a significant predictor of self -confidence and self-efficacy in both recreational and competitive athletes. This finding led to the conclusion that athletes wanting to increase confidence and self-efficacy should focus on MG-M imagery.

Overall, the above studies demonstrate that children 7 – 14 years of age use imagery in sport, age and gender influence their use of imagery, and their use of imagery is related to other cognitive variables such as self-confidence and self-efficacy.

Imagery in Exercise

Hall (1995) was the first to propose that exercise participants may also use imagery for cognitive and motivational reasons just as competitive athletes use imagery to enhance their sport performance. He proposed that regular exercisers may imagine themselves participating in physical activities, enjoying their workouts and achieving their goals. Hall (1995) also proposed that imagery used in an exercise setting may lead to an increase in motivation because of its influence on confidence and outcomes. Hausenblas, Hall, Rodgers, and Munroe (1999) wanted to build upon Hall's (1995) work by investigating the nature of exercise imagery and by developing a questionnaire to assess it. The first phase of their study investigated the nature of exercise imagery. They established that exercisers in an aerobics class used imagery for both motivational and cognitive purposes. Imagery for motivational reasons (e.g., feeling good about myself) was found to be used more frequently than imagery for cognitive reasons (e.g., rehearsing technique). The second phase of the study developed a questionnaire designed to assess imagery use by exercisers, the Exercise Imagery Questionnaire (EIQ). The EIQ assessed three functions of imagery: energy (e.g., when I imagine exercising, it relieves my stress), appearance (e.g., I imagine losing weight by exercising), and technique (e.g., I imagine doing the patterns/steps).

Gammage, Hall, and Rodgers (2000) examined how gender, frequency of exercise and activity type influenced the use of exercise imagery. It was found that high frequency

exercisers used all three functions of exercise imagery more often than low frequency exercisers and this finding is congruent with results of imagery use by athletes, with elite athletes using imagery more than novice and recreational athletes (Barr & Hall, 1992; Hall et al., 1990; Salmon et al., 1994). Men and women did not differ in their use of energy imagery, but women used appearance imagery more frequently than men. Furthermore, men used technique imagery more frequently than women. Finally, activity type (e.g., running, aerobics, weight training) influenced the use of exercise imagery. Therefore, all three variables (gender, frequency and type of activity) significantly influenced the use of exercise imagery with frequency being the variable having the most influence.

In 2003, Giacobbi, Hausenblas, Fallon, and Hall, examined the content and function of mental images used by regular exercisers through grounded theory analytic methods. More precisely, they examined when exercisers use imagery, what they image, where they engage in exercise imagery, and their reasons for engaging in exercise imagery. Participants included 16 females (18-39) who engaged in a wide variety of aerobic and anaerobic exercises (e.g., softball, weight lifting, kickboxing, tennis, etc.). Participants were interviewed to get their thoughts and opinions on exercise imagery. Results from the study indicated that participants were using imagery at various times such as at night, during the day, before a workout, during a workout, and prior to specific exercises. Participants reported using imagery related to exercise technique, exercise routines, appearance, competitive outcomes, fitness and health outcomes, emotion/feelings associated with exercise, and exercise self-efficacy. The study also

indicated that appearance-related images in particular were used as motivation to engage and maintain exercise behaviours.

The previous studies demonstrated that exercisers employ imagery for different purposes and in different situations. The variations in imagery use may reflect different types of motivation. For example, an exerciser using energy imagery could be more intrinsically motivated (i.e., he/she wants to feel energized by exercising), while an exerciser using appearance imagery could be more extrinsically motivated (i.e., he/she wants to look good by exercising). In a study by Wilson et al. (2003), it was found that exercisers used imagery for different motivational purposes. More specifically, it was found that more self-determined motives were associated with both appearance and technique imagery, while less self-determined motives were associated with only appearance imagery. This study provided preliminary evidence that imagery use reflects different types of motivation in adult exercisers. It needs to be emphasized that all the exercise imagery studies presented above were conducted with adults and there have been no similar studies undertaken with children.

When examining children's imagery use in active play it is important to have a strong theoretical basis, which is helpful in both examining the role of imagery in this context, as well as in creating theory based imagery interventions to promote active play. According to Wilson et al. (2003), SDT is a useful framework for examining motivational foundations of exercise imagery. Therefore, SDT may be useful in understanding children's use of imagery in active play.

Self-Determination Theory

SDT describes human motivation and personality (Deci & Ryan, 2008). It affirms that all individuals have natural, innate and constructive tendencies to achieve a more elaborate and integrated sense of self (Deci & Ryan, 2002). This inherent motivation which is vital to human functioning can be supported or thwarted by social contextual factors. According to SDT motivation falls along a continuum from highly controlled motives to more self-determined autonomous motives. At one end of the continuum lies intrinsic motivation which refers to the motivation to do something for the pure enjoyment of it and at the other end lies amotivation which refers to a lack of intention to act. In the middle of the continuum are four types of extrinsic motivation (external, introjected, identified and integrated regulation).

SDT focuses on three basic psychological needs to help define the supportive or antagonistic social environment. The three basic psychological needs are autonomy, competence and relatedness (Deci & Ryan, 2002). Autonomy refers to being the perceived origin or course of one's own behaviour. Competence refers to feelings of effectiveness in association with an individual's interaction with the social environment and in experiencing opportunities to exemplify confidence in one's global capacity. Relatedness refers to having a sense of belonging and connection to other individuals and is reflected in the tendency to feel integral and connected to the lives of others (Deci & Ryan, 2002). SDT postulates that situations that allow for satisfaction of the basic needs will result in healthy functioning whereas situations that thwart the satisfaction of basic needs will diminish healthy functioning. To the extent that an aspect of the social context permits a need achievement, it yields engagement, mastery and synthesis; whereas to the

extent that it diminishes need achievement, it diminishes the individual's motivation, growth, integrity, and well-being (Deci & Ryan, 2002). SDT expands on the fact that there are required conditions to ensure the growth in people's personalities and cognitive structure just as there are required conditions to ensure a person's physical development. A healthy human psyche will strive to engage in those conditions and when possible will gravitate towards situations to lead to those conditions.

Although SDT is composed of 5 mini-theories, for the purposes of this study, we will be guided mainly by one of SDT's mini theories, the Basic Needs Theory (BNT). BNT highlights the fact that when the needs for autonomy, competence and relatedness are met and satisfied, there is an increase in motivation and well-being. Similarly, when needs are not met or satisfied they diminish motivation and well-being (Deci & Ryan, 2002). Previous research has shown that general satisfaction of each basic need contributes to general well-being and that daily satisfaction of each need explains daily fluctuations in well-being over time (Sheldon, Ryan, & Reis, 1996; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). To qualify as a need, a motivating force must have a direct relation to well-being. Needs are universal, therefore they apply to all people regardless of age, gender or culture. However, the way in which they are satisfied may vary among these variables (Deci & Ryan, 2002). BNT stresses the importance of satisfying the basic psychological needs to guarantee positive psychological health and well-being. The theory underlines that environments that support these needs will aid in intrinsic motivation while environments that thwart one or more of these needs will delay motivational development (Deci & Ryan, 2002).

Components of Self-Determination Theory

As previously mentioned, self-determination theory is an over-arching theory which is based upon 5 mini theories, linked together by common assumptions and featuring an integration of the concept of basic psychological needs. The 5 mini theories combined form SDT and cover all types of human behaviour in all contexts. BNT is the mini-theory that is used for the present study; however, the four remaining mini theories deserve a mention, as each adds a layer of analysis in our understanding of human motivation. The first of the remaining theories is Cognitive Evaluation Theory (CET) which focuses on intrinsic motivation. CET, which elaborates on deCharms'(1968) analysis of perceived locus of causality, describes the reward effects on intrinsic motivation (Deci & Ryan, 2002). More specifically this theory examines how the needs for autonomy and competence affect intrinsic motivation. Deci and Ryan (1980) suggested two ways in which intrinsic motivation can be effected: perceived locus of causality and perceived competence. Perceived locus of causality incorporates the need for autonomy and elaborates on the fact that when an event stimulates a change in perception to a more external locus, intrinsic motivation will be weakened, and when the change in perception is towards a more internal locus intrinsic motivation will be improved. Perceived competence is related to the need for competence. It explains that when an event enhances competence, intrinsic motivation will be enhanced as well, and when an event decreases competence, intrinsic motivation will decrease too (Deci & Ryan, 2002). This theory also incorporates the need for relatedness but on a more exploratory basis as it is not always present in maintaining intrinsic motivation.

The second theory is Organismic Integration Theory (OIT) which addresses extrinsic motivation. As previously mentioned extrinsic motivation includes external, introjected, identified, and integrated regulation. OIT incorporates the term internalization, which is represented along a continuum. The more internalized the regulation, the more it becomes part of the integrated self which leads to more self-determined behaviours. The continuum classifies the different types of regulations for extrinsic motivation based on the degree to which they represent autonomy.

The third theory is Causality Orientation Theory, which indexes characteristics of personality that are integral to the regulation of behaviour and experience (Deci & Ryan, 2002). The theory is broken down into three orientations: autonomy orientation, controlled orientation and amotivated orientation (or impersonal causality). Autonomy orientation involves adjusting behaviours based on interests and self-endorsed values. It leads a person towards intrinsic motivation and well integrated extrinsic motivation. Controlled orientation relates to external and introjected regulation and is based on the controls and directives that regulate how one should behave. Amotivated (impersonal) orientation incorporates behaving unintentionally and relates to amotivation and lack of intentional action (Deci & Ryan, 2002).

Goal Content Theory (GCT) is the last mini-theory that forms SDT. GCT examines the differences that exist between extrinsic and intrinsic goals and their impact on motivation and well-being. Extrinsic goals (e.g., financial success, fame, etc.) are seen to be associated with lower well-being, while intrinsic goals (e.g., close relationships, personal growth, etc.) are associated with higher well-being.

Need Satisfaction with Children

Deci and Ryan (2000) stated that needs are essential for growth, integrity and wellness in any domain of human activity. Furthermore, environments that favour the satisfaction of the needs assist in achieving intrinsic motivation. Recently research has started to explore the application of the basic needs theory to children in sport and physical education. Gagné, Ryan, and Bargmann (2003) examined the effects of young athletes' perceptions of support from coaches and parents on their need satisfaction, motivation and well-being. This study used SDT's framework to examine (a) the relations of perceived parent and coach support to the athlete's enduring and daily motivation and need satisfaction, and (b) how daily motivation and psychological need satisfaction during practice affect the athletes' well being. The participants were 33 gymnasts aged 7 to 18 who completed diary forms before and after each practice over a span of 4 weeks during a non-competing period. The results indicated that the more autonomy-supportive the coach and parents were, the more autonomously motivated the gymnasts were. Need satisfaction during practice had an effect on the well-being of the gymnast from before to after the practice. The study also found that an autonomous supportive environment serves to satisfy psychological needs that are essential in achieving autonomous motivation. The results indicated that athletes with more autonomous forms of motivation had, on average, more positive experiences and higher well-being. Furthermore, athletes who experienced support for autonomy, relatedness and competence indicated more positive affect, more vitality, higher state self-esteem, and less negative affect. It was proposed that a more autonomous supportive style of coaching may lead the athlete to

feeling more competent and more autonomous, which in turn could influence the environment (e.g., how athletes interact with each other – relatedness).

Self-determination theory has also been used to examine the influence of physical education environments on the satisfaction of children's psychological needs (Ntoumanis, 2001; Shen, McCaughtry, & Martin, 2007; Hagger et al., 2003; Taylor, Ntoumanis, Standage, & Spray, 2010; Standage, Duda, & Ntoumanis, 2003). Ntoumanis (2001) found the social factors of co-operation, improvement and choice in a physical education setting were associated with the three psychological needs of autonomy, competence and relatedness. Taylor and colleagues (2010) showed that with respect to these three needs, competence was the strongest predictor of intrinsic motivation. They also found that children with higher satisfaction of competence had a greater acceleration in leisure-time physical activity over the school trimester compared to children who had a low satisfaction of competence.

Standage et al. (2003) examined the influence that the physical education environment had on psychological needs, as well as its impact on children's intention to participate in physical activity outside of the classroom setting. Results indicated that students felt more autonomous, more competent and more related when perceiving an autonomous-supportive climate that was minimal in controlling features. These results were congruent with the findings of Gagne et al. (2003). The results also indicated that the three psychological needs predicted self-determined motivation towards intentions to be physically active outside of the classroom. However, it was found that competence and relatedness were stronger predictors of self-determined motivation than autonomy. The results from this study indicated that physical education in schools has the ability to

increase children's intentions to partake in physical activity outside of school when the environment is autonomous supportive. Overall, the above studies clearly indicate that children's physical activity behaviours can be influenced by the satisfaction of the three basic psychological needs for autonomy, competence and relatedness.

Purpose

The purpose of the present study was to examine children's use of imagery in their active play using a qualitative approach based on the three basic psychological (autonomy, competence and relatedness) needs put forth by BNT (Deci & Ryan, 2002). A secondary purpose was to examine gender and age differences that exist in children's use of active play imagery.

Based on existing literature it was believed that children would use active play imagery. It was also expected that children would satisfy their need for autonomy, competence and relatedness through such imagery. Furthermore, age and gender differences were expected.

Methods

Participants

The participants were 104 males (n=48) and females (n=56) aged 7 to 14 years old. As suggested by Thomas and colleagues (Thomas, 1990; Thomas, Gallagher, & Thomas 2001) narrow and distinct age groups were employed. More precisely, the age groups were as follows: 7-8 years, 9-10 years, 11-12 years, and 13-14 years. The participants were recruited from summer camps in south-western Ontario between the

months of July and August. Participants were in various sport and technology related camps, including soccer, basketball, archery, multi-sport, science, and volleyball.

Design

The qualitative approached used from this study is what Merriam (2009) calls a *basic qualitative study.* Merriam (2009) has described a basic qualitative study as the most commonly used types of qualitative research and suggests that:

> Researchers conducting a basic qualitative study would be interested in (1) how people interpret their experiences, (2) how they construct their worlds, and (3) what meaning they attribute to their experiences. The overall purpose being to *understand* how people make sense of their lives and their experiences. (Merriam, 2009, p.23)

More specifically a double layer design was used with 23 focus groups with three to nine participants in each focus group. A focus group is a "discussion involving a small number of participants, led by a moderator, which seeks to gain an insight into the participants' experiences, attitudes and/or perceptions" (Hennessy & Heary, 2005, p. 236). Focus groups facilitate the collection of personal thoughts about the topic being discussed (Krueger & Casey, 2000). Focus groups have also been shown to be valuable when working with children and have been shown to be an effective method of getting information about attitudes and opinions on topics of interest (Horner, 2000). Efforts were made to ensure homogeneity in age and gender in the focus groups. A double layer design was used because it facilitates the comparison between any layer of design (i.e., gender and age in the present study).

Procedure

Upon receiving ethical approval from the research ethics boards of both data collection sites and upon receiving approval from the university summer camps coordinators, data collection began. Initially the parents of the participants were contacted via email describing the study. If the parents were interested in the study, they had the option to fill out an online information package that was sent directly to the researcher. In addition, campers and parents were approached during pick-up/drop-off times at the camps and informed about the study. Once consent from parents and assent from children were received, the participants participated in the focus groups. Focus groups were held following a camp day. The focus groups were between 35-45 minutes in duration, as recommended by Krueger and Casey (2009). Each focus group consisted of the participants, a moderator and a research assistant. When working with children and youth, Krueger and Casey (2009) indicate that it is essential to have a moderator that will ensure the participants feel comfortable and someone that participants can relate to. Therefore, following their suggestion that a younger moderator is favourable, the moderator was a graduate student. The moderator had previous experience working with children and had attended workshops on how to conduct focus groups. In addition, a literature review (Krueger & Casey, 2009; Barbour, 2007; Liamputtong, 2009; Peterson-Sweeney, 2004; Heary & Hennessy, 2006; Hennessy & Heary, 2005) on focus groups with children was completed by the moderator to help guarantee consistency over the course of collecting data. The research assistant was in charge of recording the session and taking accurate notes throughout the session.

Interview Guide

An interview guide approach (Patton, 1990) was used in the present study which consisted of questions pertaining to the basic psychological needs (SDT; Deci & Ryan, 2002) as they relate to imagery use in active play. The interview was separated into three parts. The first part provided the participants with general information about the study, as well as a definition of imagery. In the present study imagery was defined as: 'a mental skill that is used to create or re-create pictures and feelings in your mind'. This definition was based on those proposed by White and Hardy (1998) and Morris, Spittle, and Watt (2005). Imagery was defined to the participants before any questions were asked to ensure that all participants understood the definition. In addition, the research assistant provided a concrete example to further explain how imagery could be used in active play. The children then introduced themselves and talked about their favourite physical activities. Krueger and Casey (2009) suggest that this is crucial as it allows participants to become comfortable with talking to one another.

The second part of the interview consisted of asking questions regarding imagery use in active play. Questions were divided into 3 sections to represent the three basic psychological needs (autonomy, competence and relatedness). An example of an autonomy questions was "*when you picture yourself playing/doing the physical activity why do you picture these activities?*" An example of a competence question was "*when you picture yourself playing/doing the physical activity, what do you see yourself doing?*" Finally an example of a relatedness question was *"when you picture yourself playing/doing the physical activity who do you see yourself with?"* In addition to these questions, specific probes were used to ensure a greater understanding of participants'

responses. The final part of the interview was a summary of the major themes that were discussed, and determining whether there was any other information the participants felt should be included in the study. Immediately following all focus groups, a debriefing session was conducted between the moderator and the research assistant. The debriefing session was used to discuss the major themes and key points that were discussed throughout the focus group by participants.

Data Analysis

Data analysis was done following the suggestions of Braun and Clark (2006). The researchers were familiar with the data through transcribing the data and from re-reading the transcripts. Two separate researchers hand coded the data and created initial codes to be inputted into a qualitative analysis computer program QSR NVivo 9 (QSR International, 2010) for additional analysis. The transcripts were divided into text units and the text units were divided into codes deductively guided at first by the psychological needs for autonomy, competence and relatedness. Following the deductive process, an inductive process was completed to categorize themes that appeared from the focus group data (Patton, 1990). Once all the themes were determined, they were given names and defined. Finally, themes were then compared in each age cohort to uncover any age differences, as well as compared in both genders to determine any gender differences. Gender differences were deemed noteworthy only if one gender exclusively indicated the theme. Age differences existed when a theme was mentioned by one of the difference age cohorts but not all of them.

Trustworthiness Procedures

A pilot study was conducted with a small group of 9-10 year old girls (n=5) before data collection to ensure the trustworthiness of the interview guide and the focus group outline and to ensure the moderator was familiar with the questions and the procedure. Following the pilot study, the moderator and a research assistant discussed ways in which the focus group could be improved. There was a slight modification in the way in which the moderator approached the questions to ensure that questions allowed for more open-ended answers. In addition, note taking by the research assistant was modified to ensure that proper notes would be taken and to ensure that the research assistant would make note of non-verbal behaviours of the participants during the focus group.

Two investigators independently analysed the data and compared 20% of the data to ensure validity. The inter-rater reliability was 96%. According to MacQueen, McLellan-Lemal, Bartholow, and Milstein (2008), an 85% or higher percentage of agreement is deemed "good" agreement. Therefore, our coding process with 96% of agreement was considered reliable. When disagreements occurred between the two researchers over the categorization of different text units, each researcher provided a rationale for their decision and an agreement was reached. Throughout the data collection and data analysis procedures, researchers at both data collection sites worked in collaboration and had debriefing sessions in order to attain triangular consensus of emerging themes between investigators (Patton, 2002).

Results

General Findings

The results from the present study indicated that children are using imagery during active play and that their imagery is related to satisfying the three basic psychological needs of autonomy, competence and relatedness. Several themes emerged under the three basic needs and can be seen in Figures 1-6. Figures 1-3 indicate the age differences that were found among participants. The categories within the tree with the dotted lines indicate age differences. Figures 4-6 indicate the gender differences. The categories with the dotted lines in these figures represent gender differences.

Participants reported on *when* they pictured themselves doing physical activity. Participants reported using imagery at various times, including just before the activity, when they are bored, immediately after the activity, while doing something they don't like, at school, and in the afternoon. This finding is illustrated by a 14 year old boy who said: "Sometimes I think about it either before or after doing the thing [activity]...". It is also illustrated by the following quote by a 10 year old girl: "...when I'm like bored or tired or something you just kinda picture and then you want to go and do it and stuff like that".

Relatedness

Relatedness is described as having a connection with others and a sense of belonging with others and a community (Deci & Ryan, 2002). Comments regarding the various people the participants pictured in their images reflected satisfying the need for relatedness. Furthermore, relatedness was divided into three categories which were playmates, determinants, and feelings. As seen in Figure 1, participants pictured

themselves with playmates, which included family (e.g., parents, siblings, and cousins), friends, and others (e.g., pets, neighbours and professional athletes). A 13 year old girl stated: " Just like I kinda picture myself with just a couple of friends". In regards to family, a 10 year old girl stated: "umm, I picture myself with my brother". Participants also reported on why they would picture those particular playmates. As illustrated in Figure 1 under the category determinants, participants indicated that playmates were included in their imagery of active play for various reasons, such as people they do not see often, people they like being with, people who also enjoy the activity, people who cheer them on, and people they often play with. This is evident in this statement by a 9 year old: "Because I usually play a lot of games with them"; and this one by an 11 year old: "The person you usually do it [play the activity] with".

Participants also reported on their feelings, both positive (e.g., happiness, excitement, joy) and negative (e.g., sadness, frustration, stressed) regarding their images of active play. In terms of relatedness, participants reported both positive and negative feelings. This is shown by a 10 year old boy:

> "Well I kind of picture myself happy and joyful and like laughing around with my friends like just joking. And I kind of feel like free and just like really just whatever I want to do and I go outside".

An 11 year old girl reported negative feelings when asked how she felt while picturing herself with others: "Umm...I feel..I don't know...I feel sad, I feel confused...".

Autonomy

Deci and Ryan (2002) stated autonomy is being the perceived origin or source of one's own behaviour. As Figure 2 demonstrates, the participants reported satisfying this need by imaging their favourite activity, activities they play a lot (frequent activities), and

activities they deemed enjoyable (fun activities). This finding was illustrated by a 9 year old boy reporting: "Well, because they are my favourite [activities] and like the ones that I like mostly". This is also apparent in a statement by a14 year old girl: "The things that you have the most fun doing you're like having fun so you kind of remember it more". This is also evident from a 13 year old boy who states: "Umm, if it's something that I do a lot then I usually picture it because I'm always thinking about it".

Participants also reported on feelings (both positive and negative feelings) regarding autonomy. It was found that all participants reported both positive and negative feelings. A 9 year old boy reported feeling positive when asked what emotions he felt when picturing himself playing: "Like, usually cause like you are like excited to do it and happy you think about yourself winning and stuff like that". In terms of negative feelings the participants reported negative feelings only in specific situations, such as if they were not in a good mood or picturing something in which they did not excel at. This finding is supported by the following quote from an 8 year old girl: "All the feelings you can have depends on what you are imaging, if it's a happy image and you feel happy and if it's a sad image you feel sad".

Competence

Competence refers to feeling successful in achieving a challenging task and engaging in occasion to express one's capabilities (Deci & Ryan, 2002). In the present study, competence branched off into various categories that included being good, body (position/feeling), skill execution, improvements, strategy, winning, and feelings.

The need for competence was satisfied by the majority of participants. Participants reported imaging themselves being very competent in their physical abilities, with many participants reporting picturing themselves better than they actually are physically, as stated by a 10 year old girl: "When I'm bike riding I can picture myself biking with no hands, when I can't do that". Participants reported satisfying the need for competence by picturing themselves being good. As Figure 3 illustrates, being good was divided into images related to being good, being average, accomplishing unrealistic skills, and images of not being good. The following quotes illustrate participants reporting being good in their imagery of active play: "Yeah because I'm already like...I'm not bad so yeah I picture myself good" (10 year old boy) and "Usually I'm really good at them...the things I am thinking about...like in my head I'm good at them" (13 year old girl). Participants also reported imaging themselves accomplish unrealistic skills which is seen in a quote from an 14 year old girl: "Umm...I've never really dunked a basketball or something so I picture myself dunking a basketball or something like that".

Although participants reported picturing themselves fulfilling the need for competence, some participants reported occasionally not fulfilling this particular need by picturing themselves not being good in their activities. These participants reported images of poor performance such as making mistakes. This is shown in a statement from a 14 year old girl: "Well if I am playing like soccer I see myself trip over the ball and fall on my butt".

Participants also discussed images of active play in regards to their bodies. Comments pertaining to participants imaging their bodies in active play were divided into

two categories; body form/position and body feelings (see Figure 3). A 12 year old boy reported on the position of his body before he would shoot an arrow in archery:

> "...the movement, I would see umm...taking the arrow from the holster loading into the bow, umm shifting my body so it's umm...sideways, and facing the target, holding back on the string to let go of the string so the arrows let loose and watching it, watching the arrow fly through the air".

Comments referring to various physiological feelings, such as being fatigued, being sweaty, being strong and being stiff were categorized under body feelings. A 7 year old boy commented on how his body felt during his imagery of active play: "I see myself umm...getting all sweaty from playing hard". Also an 11 year old boy reported: "In my picture I'm like tired and sweaty because I'm running a lot...".

Images regarding skill execution were also reported by the participants throughout the focus groups. Comments related to skill execution consisted of images of accomplishing a pass, scoring a goal or simply the execution of a motor skill. This finding is clear from the following quotes: "...dribbling the basketball and shooting on the net" (8 year old boy) and "I see myself actually riding the horse and I am trying to run around the circle or I am jumping over the fence" (9 year old girl) and "Umm...running up and down the basketball court with the ball" (11 year old girl).

As Figure 3 illustrates, participants also reported on using imagery for improvement purposes in active play. It was reported that participants would use imagery to increase confidence in their abilities, to improve skills and to improve strategy. Participants indicated that imagery could help them with strategies as a 12 year old boy stated: "It also helps to play the game if I can picture like what the people are going to do

and like how I can stop it or go through them". A 13 year old boy reported on how imagery helps him with his free throw skills:

> "Umm, ya it's like if I was going to take a free throw or something in basketball I would usually picture myself shooting it and it going straight in with a swish and usually when I do that I get a better shot"

Participants also reported using imagery to increase their confidence in regards to their active play. A 13 year old boy stated:

> "I think you're like imaging you're pushing yourself like 110% all the time. Because that's what you've always wanted to do and that's what you work hard to do. So if you're imaging that you can do it you would push as hard as you can do it"

It was also apparent when a 12 year old girl responded to why she would picture herself competent in her images: "Because it gives me more confidence".

As shown in Figure 3, participants also reported using imagery for strategies such as outperforming others or getting into position. This is apparent from the following quote by 10 year old girl: "Umm, probably I would probably describe what I am trying to do and how I am planning to do it"; and from an 11 year old boy: "I imagine myself just playing hockey and uhh...what I'm gonna do next when I'm like gonna go up on the boards and pass it and they score".

Participants also reported picturing themselves winning in their activities. This finding is apparent in a statement from a 13 year old boy:

> "Well I would do it or at recess in school or after school. And I would picture like all the big kids on the defence on the line and then the best thrower is the quarterback and the best runner is the runner backs or something like that...and I'll picture myself running and the quarterback about to get sacked and he throws the ball to me and I catch it and I get the touchdown and we win the game".

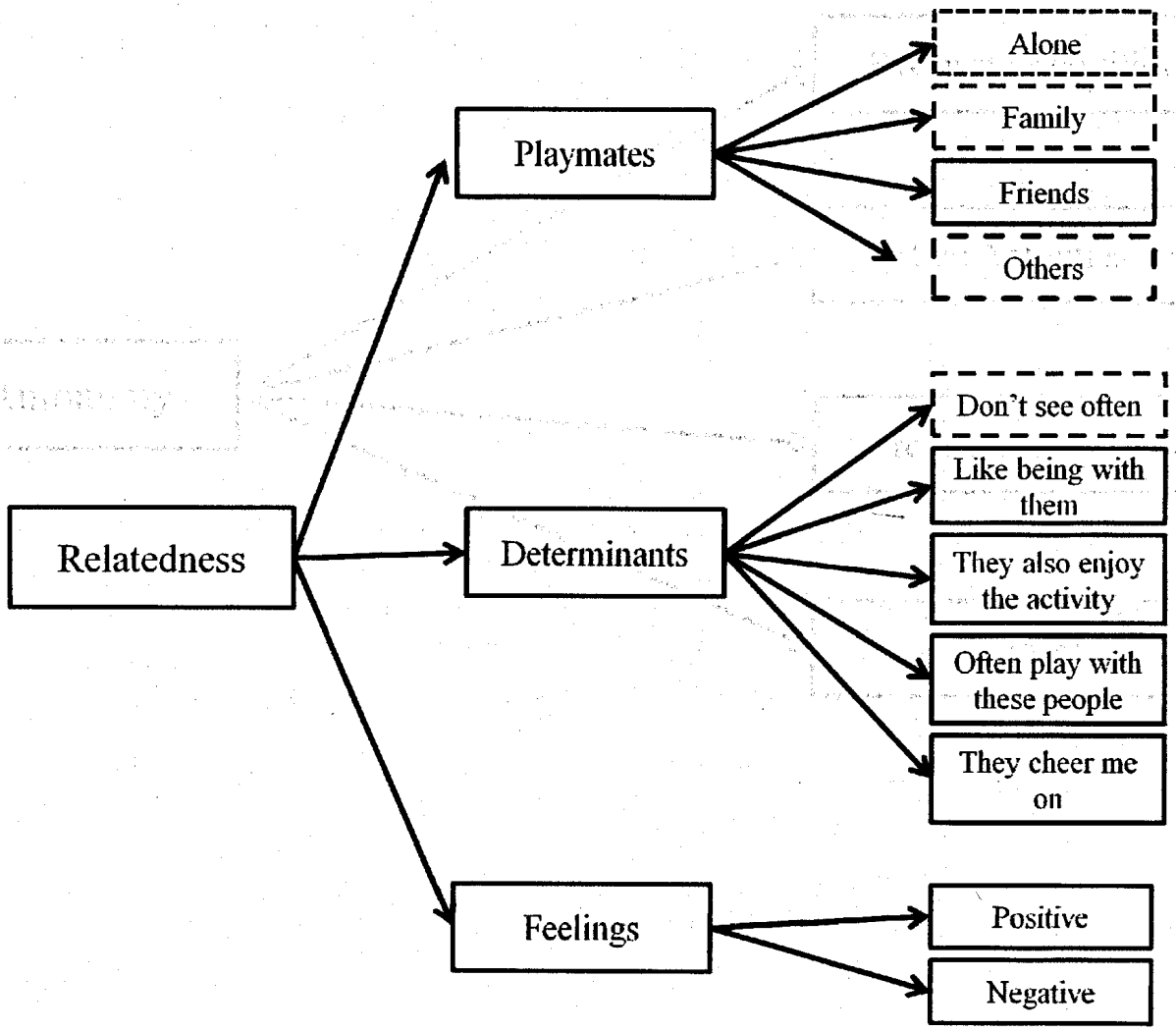
This is also evident from a 9 year old boy who discussed winning in relation with positive feelings: "Usually [be]cause like you are excited to do it [activity] and happy you think about yourself winning and stuff like that."

Participants reported having positive and negative feelings associated with their images of competence. A 12 year old girl reported negative feelings when asked why she would picture herself being bad at certain activities: "I don't know...cause it's a fear I guess". A 12 year old boy reported positive feelings:

> "I would be happy, concentrated and learning. After a like really good shot after I was in the center [of the target] I would be able to see what I did right there and the small things I did wrong that I could improve to maybe hit the center."

Figure 1 – Age Differences

A Framework for Children's Relatedness Related Imagery Use in Active Play



Legend
Boxes with dotted lines represent themes where age differences existed

Figure 2 – Age Differences

A Framework for Children's Autonomy Related Imagery Use in Active Play

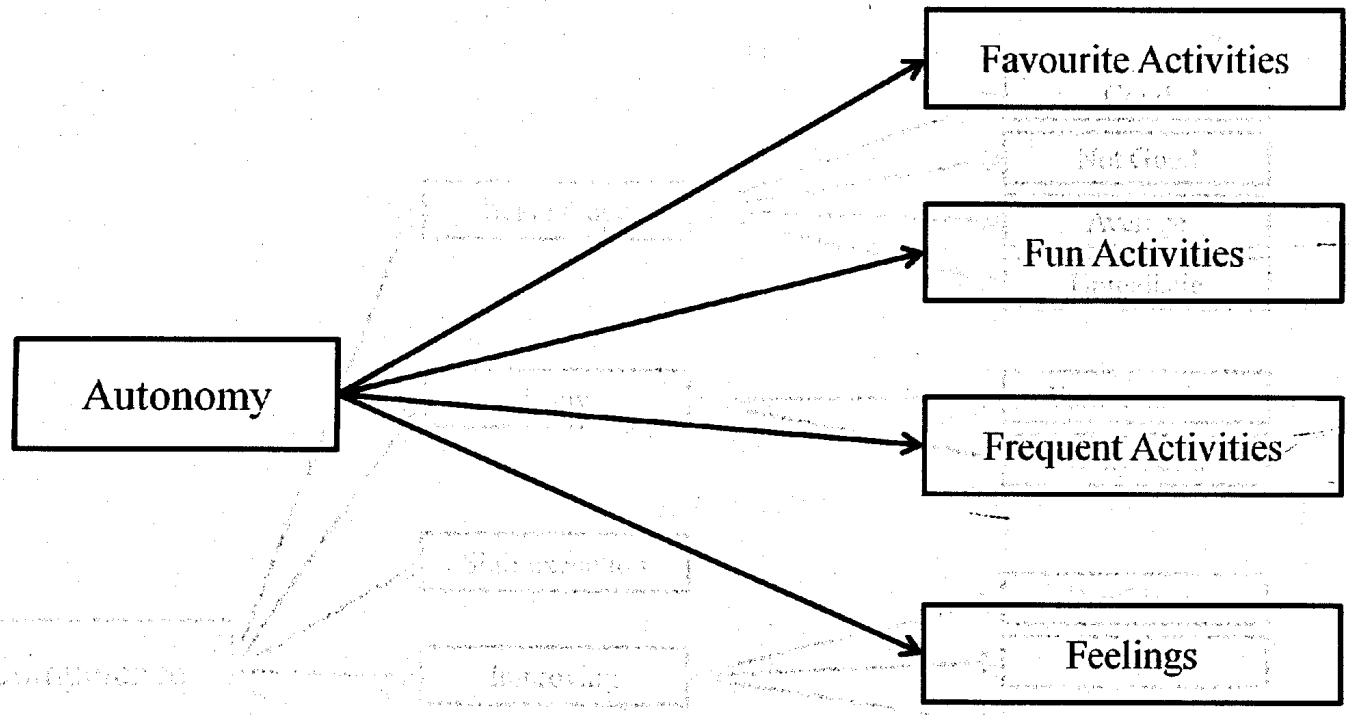
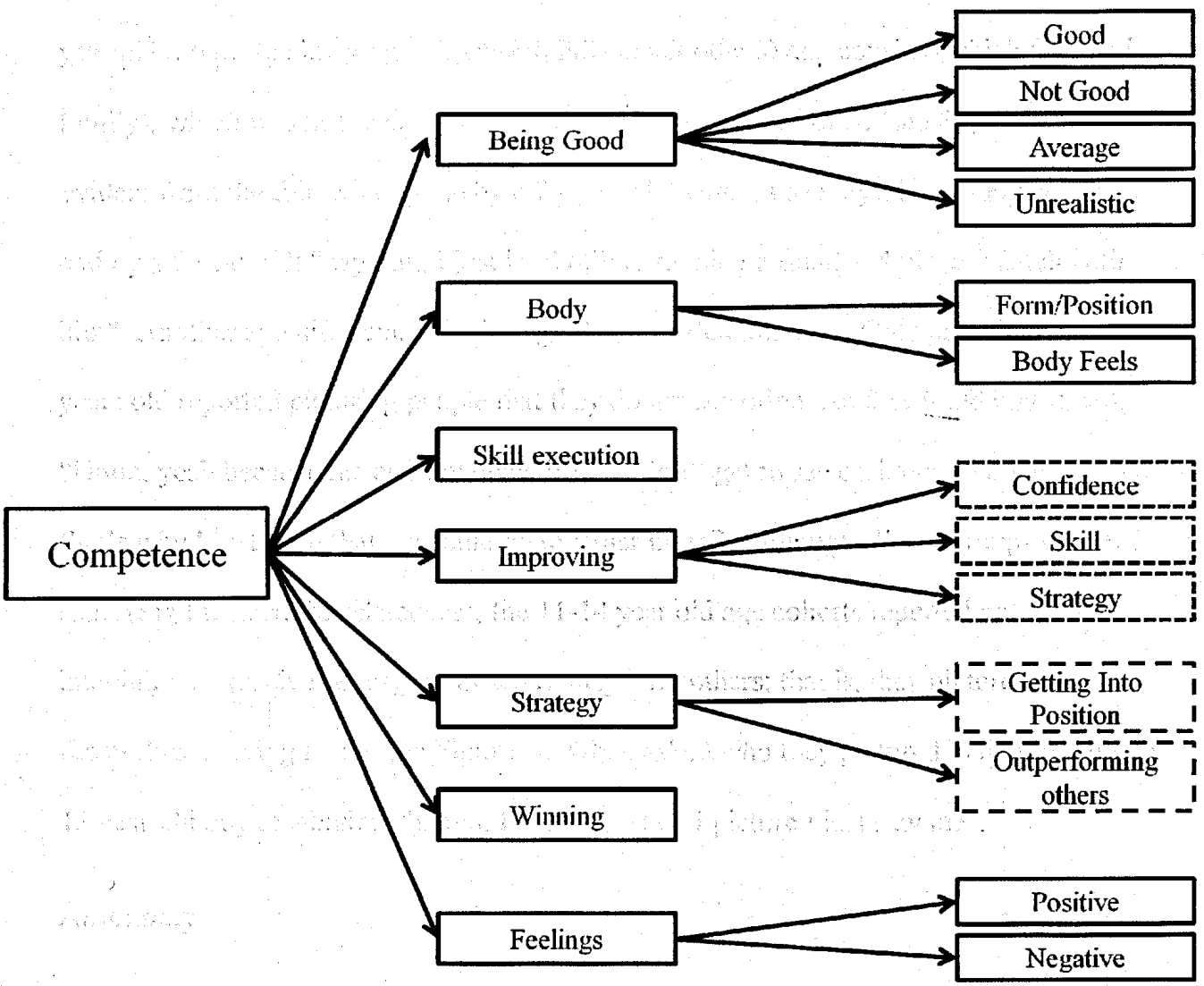


Figure 3 – Age Differences

A Framework for Children's Competence Related Imagery Use in Active Play



Legend
Boxes with dotted lines represent themes where age differences existed

Age Differences

Age differences were apparent in the use of imagery in active play to satisfy the three basic psychological needs. With respect to relatedness, age influenced the type of playmate the participants would picture in their images. The younger age cohorts (7-10 year olds) reported imaging pets (which falls under others) and cousins (which falls under family), which was not seen in older age cohorts (11-14 year olds) (see Figure 1). This is evident from the following quote by a 7 year old: "Umm, I see myself with my cousin" and by a 9 year old: "My dog, I just kind of like running around and playing catch with him". Another age difference was in regards to the determinants. Only participants 7-8 years old reported picturing people that they do not see often. An 8 year old boy stated: "Umm, yeah because me and my uncle usually don't get to see each other very much and that's why I just wish that we could be together more". Although all age groups reported satisfying the need for relatedness, the 11-14 year old age cohorts reported not always imagining themselves engaging in active play with others; that is, they pictured themselves playing alone (see Figure 1). When asked who they pictured in their images, a 13 year old boy responded: "Umm, I usually, when I picture I just saw me".

Autonomy

In terms of satisfying the need for autonomy there were no age differences (see Figure 2). All age cohorts reported satisfying this need by imaging activities that were their favourite activities, fun activities, and frequent activities. In addition, no age differences were found in regards to feelings in relation to autonomy; all age cohorts reported both positive and negatives feelings.

Competence

In terms of competence, there were a few age differences that emerged (see Figure 3). Only participants 9 to 14 years old reported using imagery to improve their skills and strategies in their active play. A 12 year old stated: "Yeah but if someone tells me that I have to work on something, then I'll try and picture myself doing that specific skill and trying to get better at it". A 9 year old stated: "That's how you imagine yourself getting better and better and better and then when you are done imaging you are actually better". Furthermore, it was found that only 11-14 year olds reported imaging activities to increase their confidence in their active play activities. A 14 year old stated: "Make yourself feel better about yourself".

As shown in Figure 3, participants also reported using imagery for strategies such as outperforming others or getting into position. This finding, however, was reported by participants 9-14 years old; it was not found in 7-8 year olds. This is apparent from the following quote by a 12 year old boy: "Like if I'm going to go around people I image like that I'm going to do". Also, an 11 year old boy stated:

> "...I would imagine that people are surrounding me and that I would have to run faster so that they don't get the ball because I know that if I don't move quick enough then they could surround me and then I might lose the ball"

Gender Differences

Throughout the data gender differences also emerged (see Figures 4-6). For relatedness there were gender differences that emerged with respect to the type of playmate participants pictured and why they pictured those particular people. It was found that only boys reported picturing themselves with professional athletes. An 11-year old boy offered this statement: "Sometimes, I imagine that I'm playing with the bigger guys

like in the NHL." In regards to the category, determinants, there were also gender differences. More specifically, only boys reported imaging people they do not see often, which is reflected in a statement by a 7 year boy talking about imaging his cousins:

> "I see [image myself with them], because I never get to see my cousins only if I go there which is probably three times a month, I get to see my cousins so its really rare so its really special to me when they come".

Another gender difference was that only girls imaged people that cheer them on, as represented by this comment from a 12 year old girl: "Like if you are swimming you are going to hear what people are saying when they cheer you on". The final gender difference in regards to relatedness was in relation to feelings. It was found that only boys reported on positive and negative images related to relatedness, whereas girls only reported negative images. An 8 year old girl reported negative feelings when asked how she felt when she imaged herself skateboarding with her sisters: "Sad, because my sisters are way better at it."

Autonomy

For autonomy there were no gender differences that emerged in the present study. Both genders reported satisfying the need for autonomy by imaging favourite activities, fun activities and frequent activities (see Figure 5). Both gender also reported having both positive and negative feelings in regards to autonomy.

Competence

With respect to competence, the only gender difference that appeared throughout the focus group was in regards to imaging being not good (see Figure 6). Only girls imaged themselves having poor performances and having images of low effort. This is apparent through the following quote by an 12 year old girl: "Sometimes I picture myself,

like if I were to do hurdles, I would picture myself falling sometimes I guess cause that's like sort of a fear for me, to fall on hurdles so I picture myself falling". A 13 year old girl gave this response to a question pertaining to her level of competence within her images:

> "I see myself just walking really leisurely, not really trying that hard, just not wasting too much energy since I don't have to. I'm alright- not as good as I would be if I was being forced to try my hardest, but just like average".

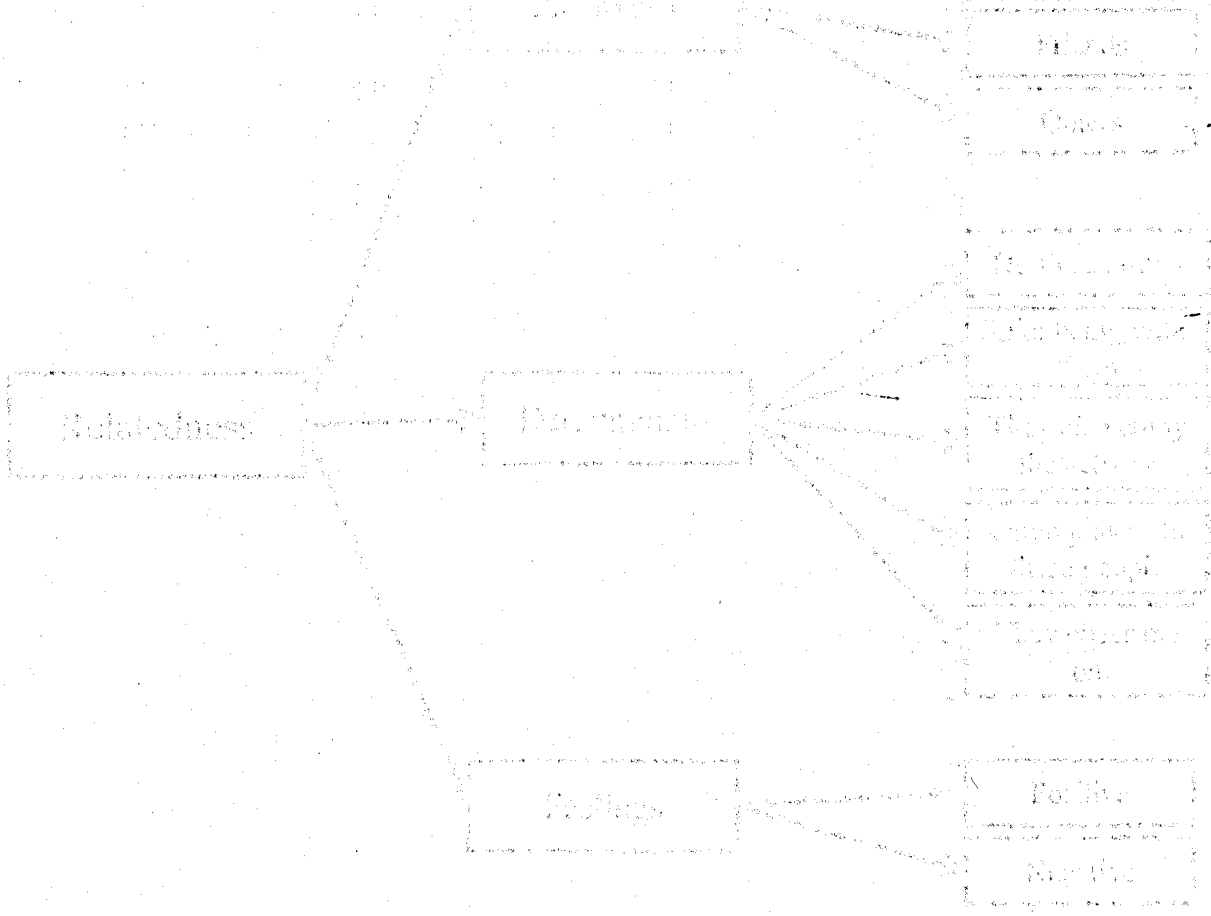
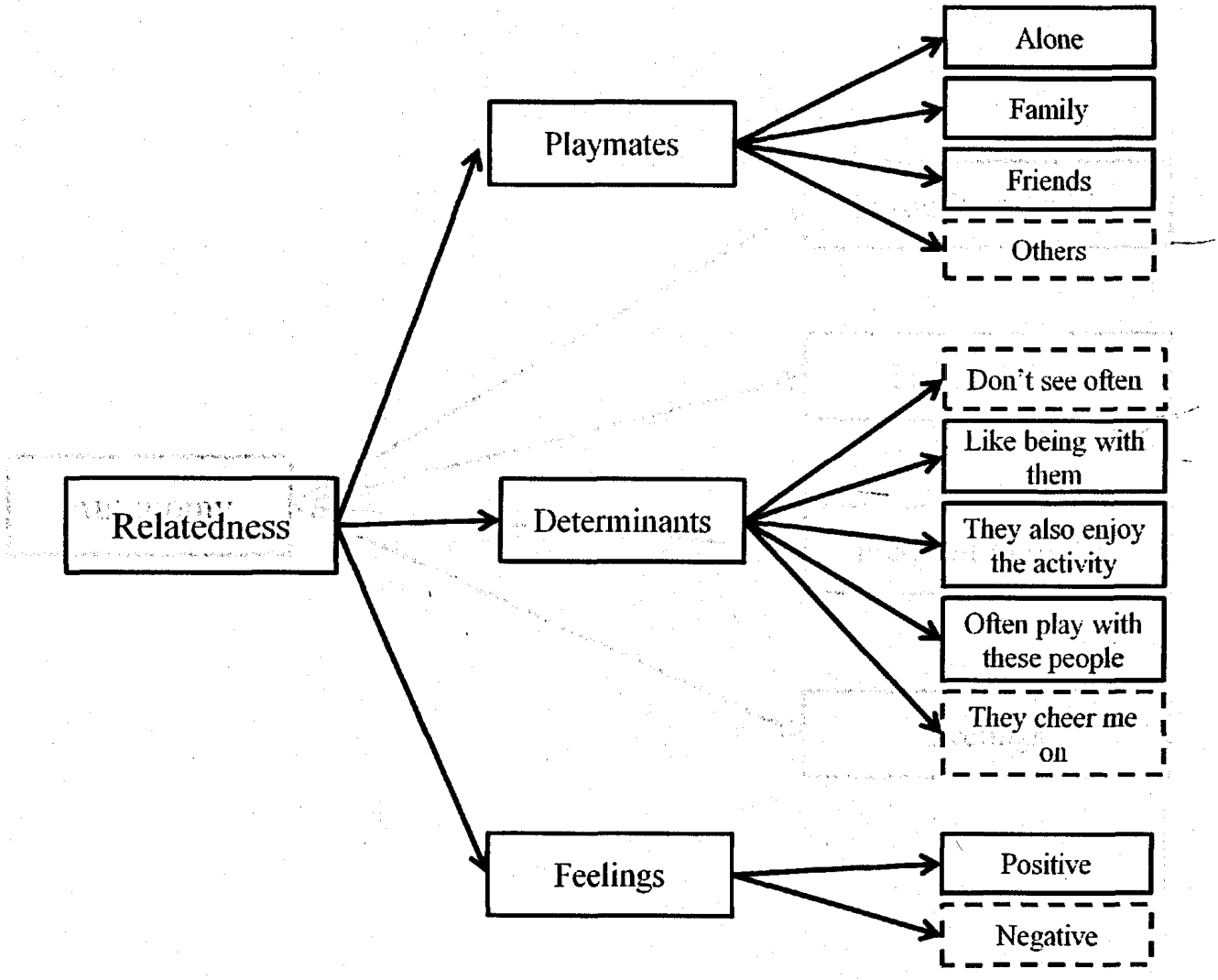


Figure 4 – Gender Differences

A Framework for Children's Relatedness Related Imagery Use in Active Play



Legend
Boxes with dotted lines represent themes where gender differences existed

Figure 5 – Gender Differences

A Framework for Children's Autonomy Related Imagery Use in Active Play

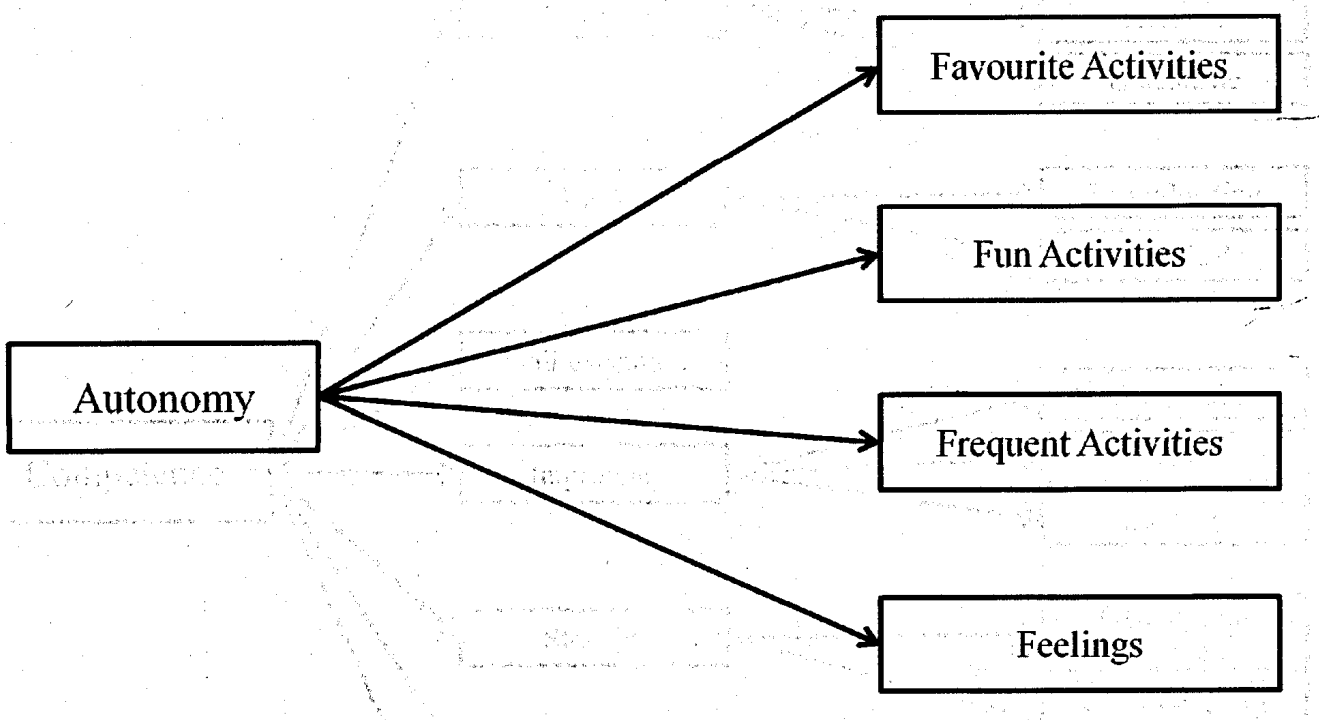
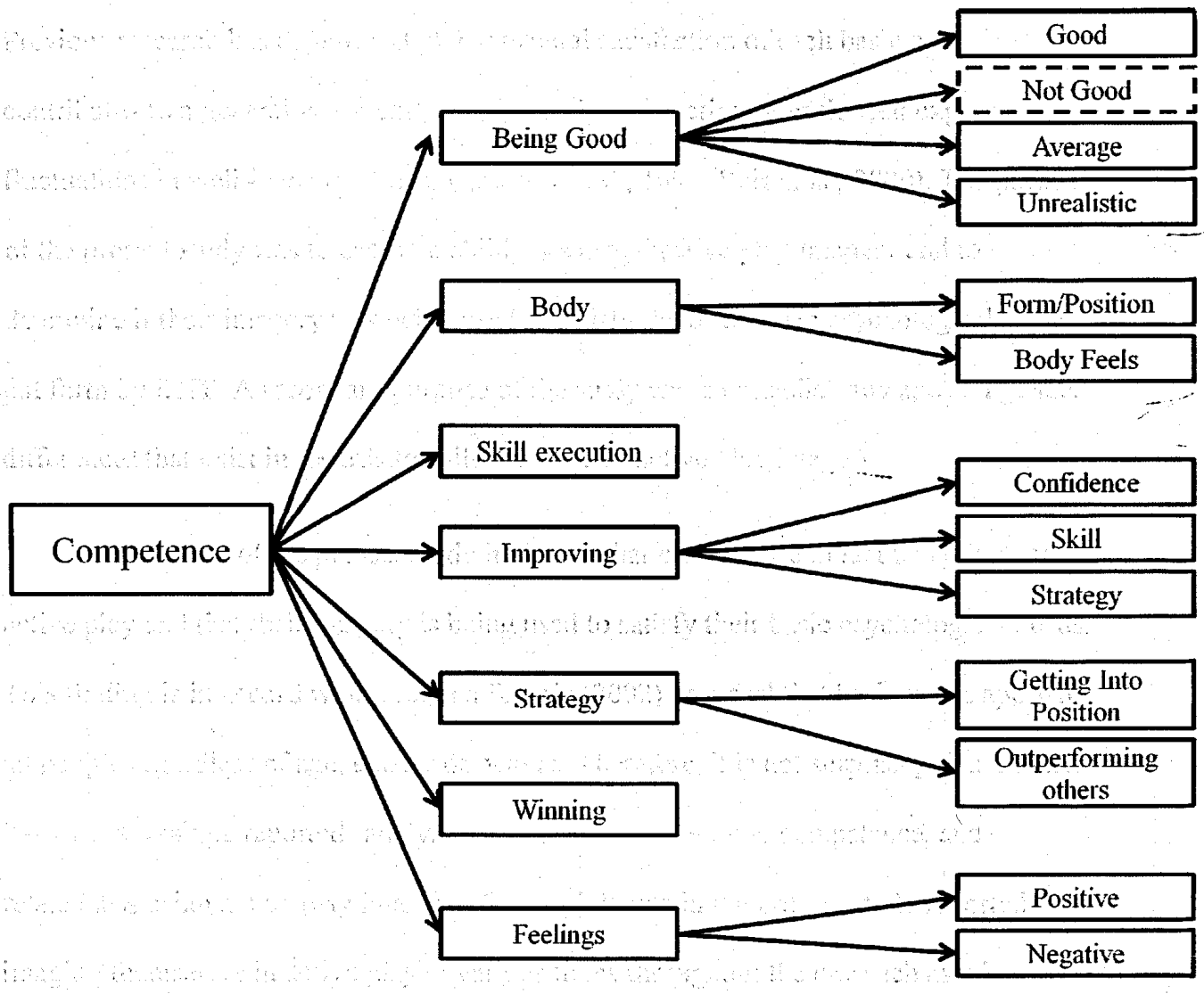


Figure 6 – Gender Differences

A Framework for Children's Competence Related Imagery Use in Active Play



Legend
Boxes with dotted lines represent themes where gender differences existed

Discussion

Basic Needs Theory proposes that when the needs for autonomy, competence and relatedness are met and satisfied, there is an increase in motivation and well-being. Previous research has demonstrated that general satisfaction of each basic need contributes to a general well-being and that daily satisfaction of each need explains daily fluctuations in well-being over time (Sheldon et al., 1996; Reis et al., 2000). The purpose of the present study was to examine children's use of active play imagery and to determine if their imagery was being used to satisfy the three basic psychological needs put forth by BNT. A secondary purpose of the study was to establish any age and gender differences that exist in regards to children's use of active play imagery.

The results of the present study indicated that children are in fact using imagery in active play and that their imagery is being used to satisfy their basic psychological needs. This finding is in accord with Deci and Ryan's (2002) proposal that basic needs apply to all people regardless of age, gender or culture. Therefore, it is not surprising that children 7 – 14 years of age reported satisfying the needs for autonomy, competence, and relatedness using active play imagery. The participants in the present study reported imaging themselves in active play at various times throughout the day such as when bored, before playing, after playing, at school, while watching television, and in the afternoon. This finding is congruent with research on children's imagery use in sports. Munroe-Chandler and colleagues (2007) found that young athletes use imagery in both a planned and a spontaneous manner at various times in the day. From a practical standpoint, it would seem that there is no best time during the day to encourage children's use of imagery; there are lots of opportunities to do so.

In regards to the satisfaction of autonomy through the use of active play imagery, all participants reporting satisfying this need. When asked why they image particular activities, participants placed an emphasis on imaging enjoyable activities, favourite activities, and activities they did frequently. Since autonomy is satisfied by being the apparent source of one's behaviour (Deci & Ryan, 2002), it is logical that participants would want to picture images that they deemed enjoyable or their favourite activities. This is an important finding in regards to using imagery interventions to motivate physical activity. Gould, Feltz, and Weiss (1985) found that fun was the most prominent reason for children's participation in physical activity; thus children who image activities that are enjoyable (fun) may also increase their motivation to be physically active. Of course, children must have the opportunity to physically participate in the same activities they are imaging if the benefits of being physically active are to be realized. For example, while a young girl might enjoy downhill skiing, encouraging her to imagine herself skiing during the summer months is likely to have little impact on her motivation to be physically active at that point in time.

Although participants generally reported positive images associated with their physical activity, some participants reported negative images as well. It is important to note that the negative feelings were only apparent in particular circumstances. Participants reported negative feelings when imaging activities that they did not enjoy or did not excel at physically. Therefore, the participant's feelings were related to what they were imaging. Naturally, any imagery intervention aimed at increasing active play would incorporate only positive images.

In terms of the need for relatedness, again all participants reported satisfying this need through their active play imagery. Participants satisfied this need by imaging themselves with friends (e.g., best friends), family (e.g., parents, siblings and cousins) and others (e.g., neighbours, professional athletes and pets). Since it has been reported that the presence of others increases youth's motivation to be physically active (Salvy, Roemmich, Bowker, Romero, Stadler, & Epstein, 2009), participants imaging themselves being physically active with others may also increase children's desire to be physically active.

In regards to satisfying the need for competence, most participants reported satisfying this need by imaging themselves competent in their active play with the majority of participants imaging themselves being better than they actually are physically. Research in children's use of imagery in the sport domain has reported children's extensive use of cognitive specific imagery (Munroe-Chandler, Hall, Fishburne, & Strachan, 2000), which entails skill execution and skill development. The present study found similar results. Participants reported images related to body form and position, as well as skill execution. Participants reported images associated with executing skills properly and having perfect technique. This particular finding can also be related to research done by Klint and Weiss (1987) who examined perceived competence and motives for participation in youth sports. They found that athletes who had high perceived physical competence rated skills and skill development as an important reason for participating in sports, compared to athletes with low perceived physical competence. It is likely the participants in the present study imaged themselves executing skills properly because it is an important factor in their active play. Whether it be sport or active play,

children like to perform well. Furthermore, since skill development has been reported as being a prominent motivator for participation in sports, it could also be a motivator in active play. Therefore, children imaging themselves accomplishing skills may be a motivating factor in their active play participation. From a practical perspective, it is important to note that when creating an imagery intervention it is crucial to have participants satisfy the need for competence. Harter (1978, 1981) established that children who feel physically competent will be motivated to continue participating in sports. Therefore, if participants image themselves being competent and developing skills in their active play, it may also increase their desire to actually engage in such physical activity.

Some participants experienced negative feelings associated with their competence imagery. These negative feelings arose when they imaged poor performances and making mistakes during their active play. It is possible that such images could have a harmful effect on motivation and active play participation. Standage et al. (2003) showed that for children in physical education, competence was a strong predictor of self-determined motivation. In addition, Taylor et al. (2010) found that children with a low satisfaction of competence in a physical education setting engaged in less leisure-time physical activity than children who had a higher satisfaction of competence. Therefore, children should be encouraged to employ predominantly positive imagery for active play.

Age Differences

Although the need for relatedness was satisfied by participants through their active play imagery, 11-14 year olds did not always report satisfying this need; rather sometimes they imaged themselves playing alone. The participants may have reported imaging themselves alone because they actually do some of their activities by themselves. In

addition, the older age cohorts may be putting more emphasis on satisfying competence instead of relatedness. The older age cohorts may be focusing more on technique, skills and strategy instead of imaging having fun with others.

Another other age difference emerged with respect to who the participants imaged. It was reported by the younger age cohorts that they imaged themselves with pets and cousins, which was not the case with the older age cohorts. The fact that participants imaged different people to satisfy the need for relatedness corresponds with the arguments forwarded by Deci and Ryan (2002). They state that although needs are universal and apply to everyone regardless of age, gender or culture, the way in which the needs are satisfied may vary among these variables.

In regards to competence, a few age differences emerged. The present study found children use active play imagery to improve their skills and strategies, as well as increase their confidence. However, it was only the 9-14 year olds who reported using imagery to improve skills and strategies. These results can be related to research findings in children's use of imagery in sports. Munroe-Chandler and colleagues (2000) reported children 9-14 used imagery in a planned manner, while 7-8 year olds used imagery in a more spontaneous manner. If participants are using imagery to improve their skills and strategies, it is more likely that the imagery will be done in a planned manner rather than spontaneously. Since the participants are choosing to use imagery for a specific purpose, it follows that their imagery probably will be done in a planned way.

In addition, it was found that the older age cohorts (11-14) reported using imagery to increase their confidence in those activities. This also can be linked to research on children's imagery use in sport. Munroe-Chandler and colleagues' (2008) reported that

imagery helped to increase self-confidence in athletes 11-14 year olds. Furthermore, Munroe-Chandler and colleagues (2007) found that younger athletes (7-10 year olds) did not use Motivational General Mastery imagery as frequently or as elaborately as their older counterparts (11-14 years old). One explanation for this finding is that the younger children in the present study reported having a lot of confidence in their abilities, and often imaged themselves as experts, as amazing, or as the best of the best. Consequently, they would have no need to use imagery to increase their confidence. This result is in accord with research demonstrating that younger children have unrealistically high perceptions of competence (Jacobs et al., 2002; Nicholls & Millers, 1984; Stipek, 1984). Jacobs et al. (2002) also indicated that older children are more aware of others, and their abilities in comparison to others. Therefore, the older participants in the present study probably were employing confidence-related imagery in order to feel competent in their abilities compared to others.

This finding regarding the use of imagery to increase confidence can also be linked to research indicating that younger children do not make use of social comparison (Marsh, Barnes, Cairns, & Tidman, 1984; Stipek & Mac Iver, 1989), perhaps because they may have more limited opportunities for comparison (Wigfield, Eccles, Yoon, Harold, Arbreton, & Blumenfeld, 1997). Since younger children are not focused on comparing themselves to others, they may focus more picturing themselves having fun. Furthermore, the older children in the present study generally put more emphasis on satisfying the need for competence compared to the younger participants. This was clearly reflected in the older participants (9-14 year olds) use of imagery for strategy purposes, such as getting into position or outperforming others. These older participants may image

strategies to feel competent when put in those situations in real life, while the younger participants are not as concerned with feeling competent, as they already have all the confidence in the world. Overall, the present results suggest that an imagery intervention could possibly serve as a tool to increase older children's confidence in their active play abilities. In turn, this may increase their motivation to actually engage in active play.

Gender Differences

The theme of relatedness was divided into three subcategories (playmates, determinants, and feelings). Gender differences emerged in all three of these subcategories. In terms of playmates, only males reported imaging professional athletes. A potential explanation for this finding could be that girls assign the role of athletes to a lower status rating compared to boys (Feltz, 1978; Williams & White, 1983). If boys rate athletes higher, they may strive to be like them and therefore want to image themselves with them (Weiss & Duncan, 1992). In terms of the second subcategory, determinants, most participants reported imaging people they play with, or people who also enjoy the same activity. However, girls reported imaging people who cheer and encourage them. This finding corresponds with research showing that girls require support and approval from others when participating in physical activity (Biddle & Armstrong, 1992). Since girls have lower levels of physical activity as they approach adolescence (Strauss, Rodzilsky, Burack, & Colin, 2001), girls may image people encouraging them, to motivate themselves to participate in active play. Girls may use imagery to fulfill the need for support and approval which may then increase their motivation to participate in physical activity. It was also found that boys imaged people they do not see often (e.g., cousins or distant family). This can be due to boys having larger peer groups than girls

(Belle, 1989); therefore, they did not restrict their images to only picturing close friends. They are able to expand into their larger peer group and image other people.

The final subcategory of relatedness was the feelings participants experienced when imaging others. Positive feelings were reported by both boys and girls, however only girls reported negative feelings associated with their images. A potential explanation for this finding could stem from the difference in how boys and girls perceive physical activity. In a study by Jago, Brockman, Fox, Cartwright, Page, and Thompson (2009), it was found that girls had negative perceptions related to physical activity. Girls who were less skilled in physical activity or who did not participate in physical activity were perceived as more socially desirable or said to be more popular, whereas the boys who were more skilled at physical activity were perceived in a positive manner. Therefore, girls may have some negative feelings when imaging themselves being active with others, as it can be deemed less socially desirable.

With respect to satisfying the need for competence, only one gender difference emerged. Although both genders reported satisfying the need for competence by imaging themselves competent in their images, only girls reported imaging themselves making mistakes, doing poorly and not performing well. Although female involvement in professional and recreational sport has increased, the lack of confidence in physical activity of females may stem from early socialization practices which may discourage physical activity participation for girls (Greendorfer, Lewko, & Rosengren, 1996). This particular finding can also be linked to Jago and colleagues (2009) study, which found girls perceive physical activity as a negative attribute among peers. If girls associated

physical activity as less socially desirable, then it could lead them to image themselves not performing well in order to have a more desirable appearance.

Limitations, Strengths, Implications and Future Directions

The present study is not without its limitations. First, the participants experience with imagery use or experience in active play was not measured. Therefore, participants could have had different levels of imagery experience or difference active play experience which could have influenced their answers during the focus group. Some participants could have been more experienced in both aspects, which could have afforded them with more experiences to discuss. Second, the focus group methodology was a limitation. Although the focus groups were meant to be gender specific, it was not always feasible. It is possible that some participants did not feel as open to discuss their experiences in front of participants of the opposite sex. However, focus groups were kept small in numbers, a young moderator was used so participants could relate to them, and participants were given the chance to introduce themselves to make the atmosphere open and friendly. This was done to ensure the participants felt comfortable in sharing their thoughts and experiences. Third, the interview guide was created with specific questions and probes relating to the three basic psychological needs and may have led participants to give responses in line with the basic needs.

Although the study had its limitations it also had its strengths. Since children's use of active play imagery had yet to be explored, using a qualitative approach was a strength of the study. The focus groups gathered a lot of information which will facilitate the continuation of research on active play imagery. The qualitative approached allowed us to get in-depth responses from the participants about their imagery use, which would not

have been possible if a quantitative approach had been used. Also, the participants in this study were the same ages as participants employed in previous sport imagery studies (e.g., Munroe-Chandler et al., 2000) and this permitted as comparison of the use of active play imagery with sport imagery.

The results clearly demonstrated that children are using active play imagery and their imagery is satisfying the basic psychological needs. Therefore, this particular study can serve as a foundation for the development of imagery interventions aimed at increasing children's motivation to do physical activity. Research has shown that satisfaction of the basic needs increases motivation and well-being (Deci & Ryan, 2002), and satisfaction of the basic needs in a physical activity setting can increase motivation to participate in physical activity (Taylor et al., 2010; Standage et al., 2003). Therefore, if imagery interventions are geared at satisfying the three basic psychological needs, the interventions may increase children's desire to be physically active. If children are satisfying their basic needs through their imagery, it may lead them to satisfy them physically as well through active play. However, since the present study demonstrated gender and age differences in how the basic needs are satisfied, it would be crucial to tailor the interventions accordingly. These imagery interventions might be best be implemented in school physical education settings as they could reach a large number of children and could easily be incorporated in the curriculum. Implementing these imagery interventions in school also could help to increase children's motivation to be physically active outside of the school setting.

In summary, children's physical activity levels are decreasing and most Canadian children do not meet the physical activity guidelines (Active Healthy Kids, 2010).

Therefore, it is essential to investigate factors that will increase their motivation to participate in physical activity. It is very possible that active play imagery is one such factor since children report using active imagery to satisfy the basic psychological needs proposed by SDT (Deci & Ryan, 2002). Accordingly, active play imagery certainly deserves further investigation. In particular, future research could examine whether a specific imagery intervention aimed at satisfying the basic psychological needs increases children's motivation to participate in physical activity.

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Appendix A – Interview Guide

Imagery Use in Children's Leisure Time Physical Activities – Study 1

Interview Guide

1. **Welcome**:
   a. Thank you for taking the time to join the discussion group on imagery use in physical activity. My name is _____. Assisting me is _____.

2. **Guidelines**:
   a. Before we begin, let me suggest some ways in which the discussion will go smoothly. You will be audio-taped because we don't want to miss any of your comments. Be sure to speak loudly enough and only one at a time. We will use your first names here today, but in a report that we write after we collect all our data, your names will not be used so that no one will know who made the comments.
   b. My role is to ask questions and listen. I won't be participating in the conversation, but I want you to feel free to speak with one another. I will be asking about 6-8 questions and I'll be moving the discussion from one question to the next. We will be done in about 45 minutes. It is important that I hear from each of you because you each have different experiences when you are active. So if one of you is sharing a lot, I may ask if others have something to share as well. And if you aren't saying too much, I may ask if you have something to add. We've placed name cards on the table in front of you to help us remember each other's names.

3. **Getting to Know You**: (approx. 5 minutes)
   - Let's find out some more about each of you by going around the table. Please state your name, age, and your favorite thing(s) to do outside other than any sport team that you play for (Each person needs to respond)

4. **Overview of the topic**:
   a. We want to hear how you use imagery when playing/moving (ball hockey , swimming) — as compared to not moving (watching TV, playing video games, reading).
   b. Definition: Imagery is a mental skill that is used to create or re-create pictures and feelings in your mind.
   c. We've asked other kids, to share their ideas as well. You were selected because you are all active and like to work up a sweat.
   d. Earlier, we talked about some of the things you like to do while playing like, (give examples), are there any more examples of types of play that you think kids like to do?
   e. Today we'll be discussing what you picture in your mind (think about) about being active (playing); Close your eyes, imagine you are doing one of your favorite playtime activities that you just told us about, remember, try to avoid

thinking about any team that you play on. I'll be asking questions such as how you would describe imagery, when you use imagery, why you use imagery and what you image. There are no right or wrong answers. Please feel free to say what you like, even if it is different from another person's point of view.

5. Key Questions:

A) Social (relatedness): When you picture yourself playing (doing those activities), who do you see yourself with?—(always friends or with others in the probe)

Probes: Who are they?
Probes: Are they your friends?
Probes: How many?
Probes: Why do you see these people? (do your friends also enjoy that activity)?
Probes: Describe what you are seeing in your image with others and which emotions you feel while you are picturing this.
Probes: When do you picture this in your head? (while in class, while at recess, while doing it, when watching TV, prior to the activity).

B) Fun (autonomy): When you picture yourself playing/doing the activity, why do you picture these activities?

Probe: Describe the feelings you have when you picture yourself doing the activity.
Probe: When do you picture this?

C) Capability (competency): When you picture yourself playing/doing the activity, what do you see yourself doing? (how are you moving, what motions are you doing, what is your body doing, how is the body moving)

Probe: Why do you image this? (because I can do it)
Probe: Do you picture your body moving?
Probe: How is your body moving?
Probe: Do you ever imagine doing something for fun that you have never done before?
Probe: In your picture are you good?—how good are you at it?
Probe: Describe how you are feeling when you are picturing this activity.
Probe: What does your body feel in these images?

6. Summary:

- Summarize the most important findings (refer to assistant). Capture common themes but acknowledge different points of view.
  - Probes: Is there anything that we should have talked about and didn't? Did we miss anything?

Appendix B- Letter of Information

Parent/Guardian Letter of Information

Imagery Use in Leisure Time Physical Activity – Study 1

Your child is being asked to participate in a research study conducted by Dr. Craig Hall from the School of Kinesiology at the University of Western Ontario. Working with Dr. Krista Munroe from the Faculty of Human Kinetics at the University of Windsor, imagery use in leisure time physical activity will be investigated.

If you have any questions or concerns about the research, please feel free to contact Dr. Craig Hall at [redacted].

Purpose of the Study
The purpose of the study is to investigate the use of imagery by children in leisure time physical activity aged 7-8, 9-10, 11-12, and 13-14 years using focus group interview sessions. Imagery is defined as creating or recreating experiences in one's mind.

Procedures
If you volunteer your child to participate in this study, we would ask he/she do the following:

Focus Groups
Children from various sport camps will be asked to participate in focus groups which are small group interviews. You will be asked for consent, and assent will be obtained from your child. The children will be assigned to one of sixteen focus groups, dependent upon the participant's age and gender. Each focus group will consist of 6-8 same gender participants within a two-year age span. The focus groups will be led by a moderator, with the help of a technical assistant. The technical assistant will be responsible for audio taping (i.e., recording) the sessions as well as keeping accurate field notes. An interview guide approach will be used in which each focus group will be asked the same questions. The interview session will be structured around 3 primary questions; who do you see when you image, why do you picture these activities and what do you see yourself doing when you image. Specific probes will be used in order to gain a greater understanding around ideas coming from the focus groups. The focus group sessions will be conducted immediately following the Sport Western program (i.e., at 4:30 pm), will be conducted

at the university in Thames Hall Room 4160, will be 45-60 minutes in duration, and will ask questions that are appropriate for the age of the participants.

Audio Taping (Recording) of Focus Groups
Audio taping is a voluntary procedure and your child is free to withdraw at any time by requesting that the taping be stopped. If your child does not wish to be recorded they will not be part of the study. Your child's name will not be revealed to anyone and taping and listening to the tapes will be kept confidential. Tapes are filed by number only and stored in a locked cabinet. The audio tapes are for research use only. The tapes will be destroyed after the study is completed

Feedback from the Study
The investigator will provide feedback to you upon request. If you have any additional concerns or questions you can email or call the investigator at the address or number above. Please keep this Letter of Information.

Potential Risks and Discomforts
There are no known or anticipated risks from discussing previous and current imagery use in physical activity.

Potential Benefits to subjects and/or to Society
This study is part of a larger study examining imagery use in leisure physical activity. The information gained from this study may be used in subsequent studies. The researchers may gain valuable insight regarding children in leisure physical activity's use of imagery in sport.

Compensation for Participation
Subjects between the ages of 7-10 will receive a water bottle and a back pack for their participation (approximately a $10.00 value). Subjects between the ages of 11-14 will either receive 10$ cash or a gift certificate in the amount of $10.00 for their participation in this project

Confidentiality
Any information that is obtained in connection with this study and that can be identified with your child will remain confidential and will be disclosed only with your permission. All responses from the focus group session will be kept in strict confidentiality. If we find information we are required by law to disclose, we cannot guarantee confidentiality. If I think that your child is being hurt or abused, I will inform you as their parent/guardian, and/or someone else who can help your child. The information obtained from the study will not be used for any purpose other than the research and the communication of the results. All information obtained from the focus group session will be kept in a locked cabinet in the investigator's office. There is no access to this cabinet by anyone other than the investigator. The audio tapes will be destroyed once the study is completed. Focus group members are asked to keep everything they hear confidential and not to discuss it outside of the meeting. However, we cannot guarantee that confidentially will be maintained by group members.

Participation and Withdrawal
Participation in this study is voluntary. Your child can choose whether to be in this study or not. If your child volunteers to be in this study, he/she may withdraw at any time. You may remove your child's data from the study. Your child may also refuse to answer any questions he/she doesn't want to answer and still remain in the study.

Rights of Subjects
If you have questions regarding your rights as a research subject, contact:
Office of Research Ethics
The University of Western Ontario
[redacted]

Appendix C – Informed Consent

Parent/Guardian Consent Form

Imagery Use in Leisure Time Physical Activity – Study 1

I have read the Letter of Information, have had the nature of the study explained to me and I agree to allow my child to participate. All questions have been answered to my satisfaction.

I consent to the audio taping of my child's focus group:	Yes	No
I will allow the information gained from this study to be used in subsequent studies on imagery:	Yes	No
I consent to my child receiving $10.00 as compensation for his/her participation.	Yes	No

Note: If you do not consent to the $10.00 compensation, your child will receive a gift certificate with a $10.00 value.

_____
Name of Child

_____
Name of Parent/Guardian

_____ _____
Signature of Parent/Guardian Date

_____ _____
Signature of Person Obtaining Informed Consent Date

_____
Name (in print) of Person Obtaining Consent

Appendix D – Assent Form

School of Kinesiology

Assent Form
Imagery Use in Leisure Time Physical Activity

Purpose of the Study

We would like to invite you to participate in a study that is going to look at the pictures that you have in your mind while at play. Having pictures in your mind is when you creating or recreating a situation in your mind. I would like you to tell me about the pictures that you have in your mind while playing or doing physical activities. This will be a group activity with other children your age.

Confidentiality

I want you to know that I will not be telling your parents or any other kids what you answer. Unless you tell us that someone is hurting you or you are afraid that someone might hurt you, we will keep your answers private and not tell anyone.

Recording

Everything we talk about will be recorded. This will help me remember what you and the others have told me about imagery.

Participation

You can ask questions at any time, now or later. Your mom and/or dad have said it is okay for you to talk to me about the pictures in your mind in playing and doing physical activities. Do you think that you would like to talk to me about it? You won't get into any trouble if you say "no." If you don't want to be in the study, just say so, and even if you say yes now, you can still change your mind later If you decide you would like to talk to me about the pictures that you have in your mind, you can feel free to stop talking at any time, and you don't have to answer any question you do not want to answer. It's entirely up to you. Would you like to tell me about the pictures that you have in your mind during activities?

I understand what I am being asked to do to be in this study, and I agree to be in this study.

_____ _____

Signature Date

_____

Witness

Appendix E – Ethics Approval Notice

Office of Research Ethics
The University of Western Ontario
Room 4180 Support Services Building, London, ON, Canada N6A 5C1
Telephone: (519) 661-3036 Fax: (519) 850-2466 Email: ethics@uwo.ca
Website: www.uwo.ca/research/ethics

Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Dr. C.R. Hall
Review Number: 16997S **Review Level:** Full Board
Review Date: April 09, 2010 **Approved Local # of Participants:** 80
Protocol Title: Imagery Use in Children's Leisure Time Physical Activities – Study 1
Department and Institution: Kinesiology, University of Western Ontario
Sponsor: SSHRC SPORT PARTICIPATION RESEARCH INITIATIVE
Ethics Approval Date: June 17, 2010 **Expiry Date:** May 31, 2011
Documents Reviewed and Approved: UWO Protocol, Letter of Information and Consent, Assent Form.
Documents Received for Information:

This is to notify you that The University of Western Ontario Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above named research study on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the study or consent form may be initiated without prior written approval from the NMREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the NMREB:

a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the NMREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the NMREB.

Chair of NMREB: Dr. Jerry Paquette
FDA Ref. #: IRB 00000941

Ethics Officer to Contact for Further Information			
☑ Grace Kelly (grace.kelly@uwo.ca)	☐ Janice Sutherland (jsuther@uwo.ca)	☐ Elizabeth Wambolt (ewambolt@uwo.ca)	☐ Denise Grafton (dgrafton@uwo.ca)

This is an official document. Please retain the original in your files.

cc: ORE File